Larson & Associates, Inc.
Environmental Consultants

APPROVED; Conditionally Approved
By OCD District 1 at 3:40 pm, May 20, 2015

Conditions of Approval
1. Ensure there are two sample points on SB-3 that are below regulated limits
2. Show location of composite samples on map
3. Investigate possibility of adding a liner in the SB-3, SE corner
4. Take ground water sample (last ground water sample was in 2008)

May 13, 2015

VIA EMAIL: Tomas.Oberding@state.nm.us

Dr. Tomas Oberding, Hydrologist
Environmental Bureau
New Mexico Oil Conservation Division
1220 So. St. Francis Drive
Santa Fe, New Mexico 87505

Re: 1RP-3593 – Paladin Energy Corp. State BT "C" No. 003 Tank Battery Spill Investigation and Remediation Report, Unit L (NW/4, SW/4), Section 35, Township 11 South, Range 33 East, Lea County, New Mexico

Dear Dr. Oberding:

Larson & Associates, Inc. (LAI), on behalf of Paladin Energy Corp. (Paladin), submits this report to the New Mexico Oil Conservation Division (OCD) to present the investigation and remediation of a crude oil and produced water spill at the State BT "C" No. 003 tank battery (Site). The vertical extent of release was determined. Paladin proposes to remove additional soil, to the extent feasible, in the area of borings SB-1 and SB-2 to reduce the concentration of total petroleum hydrocarbons (TPH). Excavating however is limited to about 1 foot below ground surface due to dense caliche. Paladin respectfully requests your approval. Please contact Mickey Horn with Paladin at (432) 522-2162 or me at (432) 687-0901.
Sincerely,

Larson & Associates, Inc.

Mark J. Larson, P.G.
President/Sr. Project Manager
mark@laenvironmental.com

cc: Kellie Jones – OCD District 1
Mickey Horn – Paladin Energy Corp.

Encl.

1RP-3593
SPILL INVESTIGATION REPORT
STATE BT "C" NO. 003 TANK BATTERY
LEA COUNTY, NEW MEXICO

LAI Project No. 15-0130-01

May 11, 2015

Prepared for:

Paladin Energy Corp.

10290 Monroe Drive, Suite 301

Fort Worth, Texas 75229

Prepared by:

Larson & Associates, Inc.

507 North Marienfeld Street, Suite 205

Midland, TX 79701

Mark J. Larson

Certified Professional Geologist No. 10490

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1.0 EXECUTIVE SUMMARY

This report is submitted to the New Mexico Oil Conservation Division (OCD) District 1, in Hobbs, New Mexico, on behalf of Paladin Energy Corp (Paladin) to present the investigation and remediation of a crude oil and produced water spill at the State BT "C" No. 003 tank battery (Site) located in Lea County, New Mexico. The legal description is Unit L (NW/4, NW/4), Section 35, Township 11 South and Range 33 East. The geodetic position is 32° 19' 07.188" north and 103° 35' 20.946" west.

The release was discovered by an OCD inspector, on March 31, 2015. On April 1, 2015, OCD issued a letter to Paladin that required corrective action to be completed by June 5, 2015. On April 2, 2015, Paladin initiated corrective action that included excavating oil contaminated soil that was disposed at the Gandy Marley land fill located west of Tatum, New Mexico. OCD issued remediation project (RP) number 1RP-3593 for the release. Groundwater occurs at about 42 feet bgs.

On April 7, 2015, personnel from Larson & Associates, Inc. (LAI) collected two 5-part composite samples (TBC-A and TBC-B) from the bottom of the excavations. Permian Basin Environmental Lab (PBELAB), located in Midland, Texas, analyzed the samples for benzene, toluene, ethylbenzene, xylene (BTEX), total petroleum hydrocarbons (TPH) and chloride by methods SW-846-8021B, SW-846-8015 and 300, respectively. Benzene and BTEX were below the OCD recommended remediation action levels (RRAL) of 10 and 50 milligrams per kilogram (mg/Kg), respectively. TPH exceeded the RRAL (100 mg/Kg) in composite samples TBC-A (1,432.14 mg/Kg) and TBC-B (12,900.58 mg/Kg). Chloride was 350 mg/Kg (TBC-A) and 971 mg/Kg (TBC-B).

On April 21, 2015, Scarborough Drilling Co., located in Lamesa, Texas, drilled 3 air rotary borings (SB-1, SB-2 and SB-3) and collected a soil sample every 5 feet using a jam tube sampler. The borings were drilled to approximately 35 feet below ground surface (bgs).

Benzene was below the method reporting limits and BTEX below the RRAL (50 mg/Kg) in the sample exhibiting the highest headspace reading above 100 parts per million (ppm) from each boring. The laboratory reported TPH above the RRAL (100 mg/Kg) in samples from borings SB-1 (0 and 5 feet bgs), SB-2 (0 feet bgs) and SB-3 (1, 5, 10 and 15 feet bgs). Chloride decreased below 250 mg/Kg in soil samples below 10 feet bgs (SB-1).

Groundwater was encountered at about 40 feet bgs in a boring drilled southeast of the facility. A sample was collected and reported BTEX below the laboratory reporting limit (RL) and chloride at 40.4 milligrams per liter (mg/L).

Paladin proposes to excavate soil to the extent feasible from the vicinity of borings SB-1 and SB-2. However, at location SB-3 caliche prevented excavating below about 1 foot bgs. The soil will be disposed at the Gandy Marley landfill. The excavations will be backfilled with clean soil acquired from the Gandy Marley facility. The firewall will be reconstructed following remediation. A report will be submitted to the OCD after remediation that will include photographs and final C-141. Paladin respectfully requests your approval of this remediation plan.

2.0 INTRODUCTION

Larson & Associates, Inc. (LAI) submits this report to the New Mexico Oil Conservation Division (OCD) on behalf of Paladin Energy Corp (Paladin) to present the investigation and remediation of a crude oil and produced water spill at the State BT "C" No. 003 tank battery (Site). The Site is located in Unit L (NW/4, SW/4), Section 35, Township 11 South, Range 33 east, in Lea County, New Mexico. The geodetic position is north 33° 19' 07.188" and west 103° 35' 20.946". Figure 1 presents a location and topographic map. Figure 2 presents an aerial map.

2.1 Background and Initial Response

On March 31, 2015, an inspector with OCD District 1, in Hobbs, New Mexico, discovered the spill. On April 1, 2015, OCD issued a letter of violation to Paladin requiring, among other things, filing form C-141 and performing corrective action by June 5, 2015.

The spill occurred from failure of a pressure relief (pop-off) valve at the free water knockout that release about 15 barrels (bbl) of oil and 40 bbl of water. The spill was contained inside the firewall. Paladin recovered about 7 bbl of fluid (oil and water). On April 2, 2015, Paladin initiated corrective actions that included excavating visually contaminated soil. The contaminated soil was hauled to the Gandy Marley landfill (NM1-19-0) located west of Tatum, New Mexico. The initial C-141 was submitted to the OCD on April 6, 2015. OCD issued remediation project (RP) number 1RP-3593. Appendix A presents the OCD correspondence.

2.2 Setting

The Site is located about 18 miles west of Tatum, New Mexico. The surface elevation is approximately 4,245 feet above mean sea level (MSL) and slopes gently to the southeast. The soil is designated "Portales-Stegall" loams, 0 to 3 percent slopes (PS). The typical profile consists of "A" horizon consisting of about 9 inches of loam and "Bt" horizon consisting of about 17 inches of clay loam. Below the "Bt" horizon is cemented material consisting of broken to indurated caliche. The main uses are livestock grazing and wildlife habitat. No surface water features are located within 1,000 horizontal feet of the Site.

According to the *Geologic Map of New Mexico* and the *Geologic Atlas of Texas, Hobbs Sheet* the surface geology is the Tertiary-age Ogallala formation. The Ogallala formation is comprised of fluvial sand, silt, clay and localized gravel, with indistinct to massive crossbeds. The Ogallala formation consists mainly of unconsolidated to poorly consolidated, very fine to medium-grained quartz sand and gravel, with minor amount of silt and clay. The caliche comprising the lower part of the Portales-Stegall loams forms a hard, erosion resistant, pedogenic calcrete that is between about 9 and 21 feet thick. The Ogallala formation is underlain by clay, silty clay, shale and sandstone of the Chile formation (Triassic) and is about 300 feet thick.

Groundwater occurs in the Ogallala formation. The Chinle formation is the lower confining boundary for groundwater in the Ogallala formation. The regional groundwater flow direction is from northwest to southeast. The nearest fresh water well (No. L01327) is located in Unit M (SW/4), SW/4), Section 35,

Township 11 South and Range 33 East. The well is located about 750 feet southwest of the Site. According to the New Mexico Office of the State Engineer (OSE) the well was drilled to about 115 feet below ground surface (bgs) and used for livestock. LAI personnel recorded groundwater in this well at about 42 feet bgs.

3.0 INVESTIGATION

3.1 Soil Samples

On April 7, 2015, LAI personnel collected two (2) 5-spot composite samples (TBC-A and TBC-B) from the areas that were excavated to about 1 foot bgs. The samples were collected using a stainless steel hand trowel and placed in clean 4-ounce glass jars. The samples were hand delivered under preservation and chain of custody to Permian Basin Environmental Lab (PBELAB), a National Environmental Laboratory Accreditation Programs (NELAP) accredited laboratory, located in Midland, Texas. The laboratory analyzed the samples for benzene, toluene, ethyl benzene, xylenes (BTEX) by method SW-846-8021B, total petroleum hydrocarbon (TPH) including gasoline (C6 – C12), diesel (>C12 – C28) and oil (>C28 – C35) range hydrocarbons by method SW-846-8015 and chloride by method 300. Table 1 presents an analytical data summary. Appendix B presents the laboratory report.

3.2 Soil Borings

On April 21, 2015, LAI contracted Scarborough Drilling Company (SDC), Lamesa, Texas, to collect soil samples from 3 air rotary drilled borings (SB-1, SB-2 and SB-3). Boring SB-1 was drilled northwest of the tanks and northeast of the free water knockout. Boring SB-2 was drilled southwest of the tank and southeast of the free water knockout. Boring SB-3 was drilled near the southeast corner of the tank battery. The borings were drilled to about 35 feet bgs and soil samples were collected every 5 feet (0, 5, 10, 15, 20, etc.) with a jam tube sampler. The samples were collected in 4 ounce glass jars and submitted under preservation and chain of custody to PBELAB, in Midland, Texas. The borings were plugged with bentonite chips. A duplicate sample was collected for headspace analysis using 8 ounce glass jars that were filled about 2/3rds full and sealed with a layer of aluminum foil. A calibrated photoionization detector (PID) was used to measure the concentration of organic vapor in the sample headspace. The highest PID readings were 264 ppm (SB-1, 5 feet), 153 ppm (SB-2, 5 feet) and 223 ppm (SB-3, 5 feet). These samples were analyzed by the laboratory for BTEX by method SW-846-8021B. Samples were also analyzed for TPH, including gasoline (C6 – C12), diesel (>C12 – C28) and oil (>C28 – C35) range hydrocarbons by method SW-846-8015 and chloride by method 300. Table 2 presents an analytical data summary. Figure 3 presents the soil boring locations. Appendix B presents the laboratory report. Appendix C presents the boring logs. Appendix D presents photographs.

Remediation action levels were calculated for benzene, BTEX and TPH based on the following criteria established by the OCD (*Guidelines for Remediation of Leaks, Spills and Releases, August 13,* 1993):

Criteria	***Result***	***Score***
Depth-to-Groundwater	<50 feet	20
Wellhead Protection Area	No	0
Distance to Surface Water Body	>1000 Horizontal Feet	0

	Total Score:	**20**

The recommended remediation action level (RRAL) for benzene, BTEX and TPH is 10, 50 and 100 mg/kg, respectively. Benzene was below the method reporting limit in sample with the highest headspace concentration, greater than 100 ppm, from borings SB-1, SB-2 and SB-3. BTEX concentrations in these samples ranged from 0.3902 mg/Kg to 0.6 mg/Kg and were below the RRAL (50 mg/Kg). TPH exceeded the RRAL (100 mg/Kg) in the following samples:

- SB-1, 0' (10,200 mg/Kg)
- SB-2, 0' (2,050 mg/Kg)
- SB-3, 1' (756 mg/Kg)
- SB-3, 10' (177 mg/Kg)
- SB-1, 5' (3,580 mg/Kg)
- *SB-2, 10' (443 mg/Kg)
- SB-3, 5' (860 mg/Kg)
- SB-3, 15' (298 mg/Kg)

*Sample may be cross contaminated from surface soil.

TPH decreased below the method reporting limit or RRAL in samples below 5 feet (SB-1), 10 feet (SB-2) and 15 feet (SB-3). Chloride decreased below 250 mg/Kg in samples below 10 feet (SB-1), 5 feet (SB-2) and 1 foot (SB-3). Appendix E presents the initial C-141.

3.3 Groundwater Sample

On April 21, 2015, a boring was drilled about 100 feet southeast (down gradient) of the tank battery and encountered groundwater at about 40 feet bgs. A sample was collected with a clean disposable PVC bailer. PBELAB analyzed the samples for BTEX (SW-846-8021B) and chloride (300.0). BTEX was below the method reporting limit and chloride was 40.4 milligrams per liter (mg/L). Table 3 presents the groundwater analytical data summary. Figure 3 presents the groundwater sample location. Appendix B presents the laboratory report.

4.0 CONCLUSIONS

The following conclusions are based on the investigation results:

- Benzene was less than the method reporting limit in the soil sample with the highest headspace concentration greater than 100 ppm from each boring;
- BTEX was below the RRAL in the soil sample with the highest headspace concentration greater than 100 ppm from each boring;
- TPH was above the RRAL in samples from 0 to 5 feet (SB-1 and SB-2) and 1 to 15 feet (SB-3);
- TPH decreased below the reporting limit or RRAL in soil samples below 5 feet (SB-1), 10 feet (SB-2) and 15 feet (SB-3);
- Chloride decreased below 250 mg/Kg in soil samples from borings SB-1 (10 feet), SB-2 (5 feet) and 1 foot (SB-3);

5.0 REMEDIATION PLAN

Paladin proposes to excavate soil to the extent feasible from the vicinity of borings SB-1 and SB-2. Caliche is present at about 1 foot bgs and prevented excavating soil below about 1 foot bgs in the vicinity of boring SB-3. The soil will be disposed at the Gandy Marley landfill. The excavations will be backfilled with clean soil acquired from the Gandy Marley facility. The firewall will be reconstructed following remediation. A report will be submitted to the OCD after remediation that will include photographs and final C-141. Paladin respectfully requests your approval of this remediation plan.

FIGURES

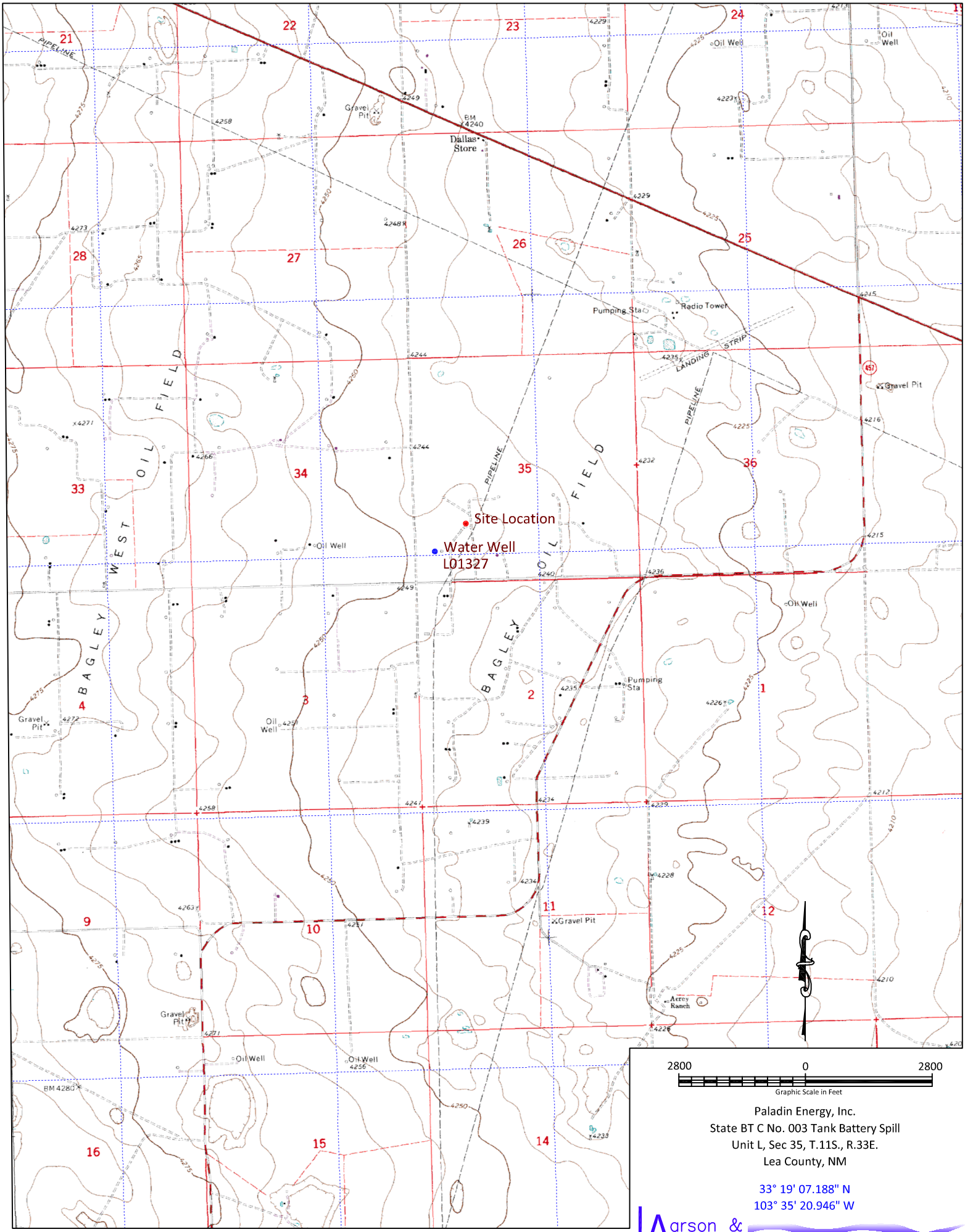

Figure 1 - Topographic Map

Figure 2 - Aerial Map

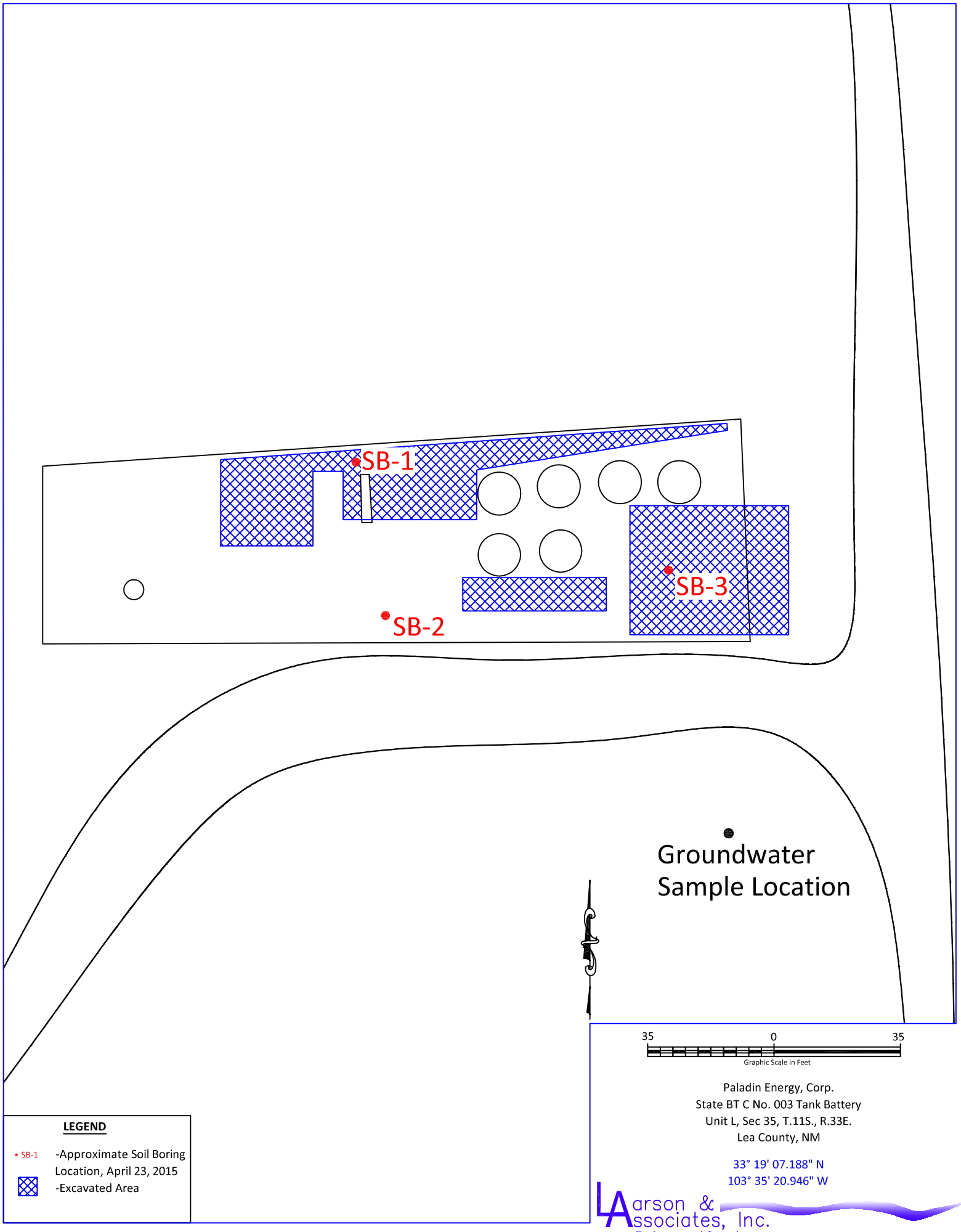

Figure 3 - Site Drawing

TABLES

Table 1
Soil Sample Analytical Data Summary
Paladin Energy Paertnes, LLC, State BT "C" No. 003 Tank Battery
Lea County, New Mexico
1RP-3593

Sample	Depth (Feet)	Type	Collection Date	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	>C12 - C28 (mg/Kg)	>C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
OCD RRAL:				**10**	**50**				**100**	
TBC - A	1.5	Composite	4/7/2015	0.00326	0.40436	208.67	1,104.2	119.27	**1,432.14**	350
TBC - B	1.5	Composite	4/7/2015	0.00122	0.21352	963.78	10,922	1,014.80	**12,900.58**	971

Notes: Laboratory analysis performed by Permian Basin Environmental Lab, Midland, Texas.

BTEX performed by laboratory method SW-8021B

TPH performed by laboratory method SW-846-8015

Chloride performed by laboratory method 300.0

Depth in feet below ground surface (bgs)

mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)

Bold and highlighted indicates that analyte was detected above the OCD recommended remediation action level (RRAL)

Table 2
Soil Boring Analytical Data Summary
Paladin Energy Paertnes, LLC, State BT "C" No. 003 Tank Battery
Lea County, New Mexico
1RP-3593

Sample	Depth (Feet)	Collection Date	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	>C12 - C28 (mg/Kg)	>C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
OCD RRAL:			**10**	**50**				**100**	
SB-1	0	4/21/2015	--	--	**296**	**9080**	**833**	**10,200**	**420**
	5	4/21/2015	<0.00111	**0.6**	**493**	**2780**	**305**	**3,580**	**397**
	10	4/21/2015	--	--	<27.5	35.1	<27.5	**35**	**280**
	15	4/21/2015	--	--	<26.3	<26.3	<26.3	<26.3	**122**
	20	4/21/2015	--	--	<26.6	<26.6	<26.6	<26.6	**75**
	25	4/21/2015	--	--	<26.9	**35**	<26.9	**35**	**67**
	30	4/21/2015	--	--	--	--	--	**--**	**44**
	35	4/21/2015	--	--	--	--	--	**--**	**103**
SB-2	0	4/21/2015	--	--	**72.50**	**1,870**	**106**	**2,050**	**125**
	5	4/21/2015	<0.00114	**0.04555**	<28.4	**98.6**	<28.4	**98.6**	**480**
	10	4/21/2015	--	--	**43.50**	**399**	<25.5	**443**	**83.30**
	15	4/21/2015	--	--	<29.8	<29.8	<29.8	<29.8	**6.55**
	20	4/21/2015	--	--	<27.2	<27.2	<27.2	<27.2	**72.20**
	25	4/21/2015	--	--	--	--	--	**--**	**4.54**
	30	4/21/2015	--	--	--	--	--	**--**	**440**
	35	4/21/2015	--	--	--	--	--	**--**	**47.70**
SB-3	1	4/21/2015	--	**--**	<32.1	**685**	**70.5**	**756**	**363**
	5	4/21/2015	<0.00130	**0.3902**	**137**	**683**	**39.4**	**860**	**8.78**
	10	4/21/2015	--	**--**	<27.5	**177**	<27.5	**177**	**52.4**
	15	4/21/2015	--	**--**	**28.7**	**270**	<26.0	**298**	**44.5**
	20	4/21/2015	--	**--**	<30.5	<30.5	<30.5	<30.5	<1.22
	25	4/21/2015	--	**--**	--	--	--	--	**65.4**
	30	4/21/2015	--	**--**	--	--	--	--	**82.3**
	35	4/21/2015	--	**--**	--	--	--	--	**96.1**

Table 2
Soil Boring Analytical Data Summary
Paladin Energy Paertnes, LLC, State BT "C" No. 003 Tank Battery
Lea County, New Mexico
1RP-3593

Notes: Laboratory analysis performed by Permian Basin Environmental Lab, Midland, Texas.
BTEX performed by laboratory method SW-8021B
TPH performed by laboratory method SW-846-8015
Chloride performed by laboratory method 300.0
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)
Bold indicates that analyte was detected above the method concentration limit
Bold and highlighted indicates that analyte was detected above the OCD recommended remediation action level (RRAL)

Table 3
Groundwater Analytical Data Summary
Paladin Energy Corp., State BT "C" No. 003 Tank Battery
Lea County, New Mexico
1RP-3593

Sample ID	Date	Benzene	Toluene	Ethylbenzene	Xylenes	Chlorides
WQCC Limit:		**0.01**	**0.8**	**0.75**	**0.62**	**250**
TMW-1	11/18/2008	<0.00100	<0.00100	<0.00100	<0.00300	**40.4**

Notes: Analysis performed by Permian Basin Environmental Lab (PBELAB), Midland, Texas
Analysis performed by EPA method SW-846-8021B (BTEX) and 300.0 (chloride)
All values reported in milligrams per liter (mg/L) equivelent to parts per million (ppm)
Bold indicates analyte was detected above reporting limit (RL) but below the regulatory limit

APPENDIX A

OCD Correspondence

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

David Catanach, Director
Oil Conservation Division

Response Required - Deadline Enclosed

Field Inspection Program
"Preserving the Integrity of Our Environment"

01-Apr-15

PALADIN ENERGY CORP
10290 MONROE DRIVE SUITE 301
DALLAS TX 75229

LETTER OF VIOLATION - Inspection

Dear Operator:

The following inspection(s) indicate that the well, equipment, location or operational status of the well(s) failed to meet standards of the New Mexico Oil Conservation Division as described in the detail section below. To comply with standards imposed by Rules and Regulations of the Division, corrective action must be taken immediately and the situation brought into compliance. The detail section indicates preliminary findings and/or probable nature of the violation. This determination is based on an inspection of your well or facility by an inspector employed by the Oil Conservation Division on the date(s) indicated.

Please notify the proper district office of the Division, in writing, of the date corrective actions are scheduled to be made so that arrangements can be made to reinspect the well and/or facility.

INSPECTION DETAIL SECTION

STATE BT C No.003 — L-35-11S-33E — **30-025-01017-00-00**

Inspection Date	Type Inspection	Inspector	Violation?	*Significant Non-Compliance?	Corrective Action Due By:	Inspection No.
03/31/2015	Routine/Periodic	Mark Whitaker	Yes	No	6/5/2015	iMAW1509048809

Violations
Absent Well Identification Signs (Rule 103)
Surface Leaks/Spills

Comments on Inspection: No well sign at wellhead (Rule 19.15.46.8). Spill has occurred at tank battery. NEED TO INSTALL WELL SIGN AT WELLHEAD. NEED TO FILE C141 TO REPORT SPILL, WITH REMEDIATION PLAN ATTACHED. FILE WITH TOMAS OBERDING IN THE SANTA FE OFFICE. SEE ATTACHED PHOTO.

STATE BT D No.003 — P-35-11S-33E — **30-025-01021-00-00**

Inspection Date	Type Inspection	Inspector	Violation?	*Significant Non-Compliance?	Corrective Action Due By:	Inspection No.
03/31/2015	Routine/Periodic	Mark Whitaker	Yes	No	5/29/2015	iMAW1509049587

Comments on Inspection: Leak at stuffing box. NEED TO FILE C141 TO REPORT SPILL WITH REMEDIATION PLAN ATTACHED. FILE WITH TOMAS OBERDING IN THE SANTA FE OFFICE. SEE ATTACHED PHOTO.

STATE BT I No.001 D-2-12S-33E **30-025-01028-00-00**

Inspection Date	Type Inspection	Inspector	Violation?	*Significant Non-Compliance?	Corrective Action Due By:	Inspection No.
03/31/2015	Routine/Periodic	Mark Whitaker	Yes	No	5/8/2015	iMAW1509048450

Violations

Absent Well Identification Signs (Rule 103)

Comments on Inspection: No well sign (Rule 19.15.16.8). NEED TO INSTALL WELL SIGN.

In the event that a satisfactory response is not received to this letter of direction by the "Corrective Action Due By:" date shown above, further enforcement will occur. Such enforcement may include this office applying to the Division for an order summoning you to a hearing before a Divison Examiner in Santa Fe to show cause why you should not be ordered to permanently plug and abandon this well.

Sincerely, Mark Whitaker
Compliance Officer

Hobbs OCD District Office

Note: Information in Detail Section comes directly from field inspector data entries - not all blanks will contain data.
*Significant Non-Compliance events are reported directly to the EPA, Region VI, Dallas, Texas.

03/31/2015 STATE BT C Tank Battery

APPENDIX B

Laboratory Reports

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
10014 SCR 1213
Midland, TX 79706

PBELAB

Analytical Report

Prepared for:

Mark Larson

Larson & Associates, Inc.

P.O. Box 50685

Midland, TX 79710

Project: Paladin Tank Battery

Project Number: 15-0130-01

Location: New Mexico

Lab Order Number: 5D08013

NELAP ACCREDITED TNI LABORATORY

NELAP/TCEQ # T104704156-13-3

Report Date: 04/10/15

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladin Tank Battery
Project Number: 15-0130-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TBC-A	5D08013-01	Soil	04/07/15 12:50	04-08-2015 09:25
TBC-B	5D08013-02	Soil	04/07/15 12:55	04-08-2015 09:25

TBC-A

5D08013-01 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	**0.00326**	0.00114	mg/kg dry	1	P5D1002	04/09/15	04/09/15	EPA 8021B	
Toluene	**0.130**	0.00227	mg/kg dry	1	P5D1002	04/09/15	04/09/15	EPA 8021B	
Ethylbenzene	**0.0290**	0.00114	mg/kg dry	1	P5D1002	04/09/15	04/09/15	EPA 8021B	
Xylene (p/m)	**0.182**	0.00227	mg/kg dry	1	P5D1002	04/09/15	04/09/15	EPA 8021B	
Xylene (o)	**0.0601**	0.00114	mg/kg dry	1	P5D1002	04/09/15	04/09/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*96.2 %*	*75-125*		*P5D1002*	*04/09/15*	*04/09/15*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*76.7 %*	*75-125*		*P5D1002*	*04/09/15*	*04/09/15*	*EPA 8021B*	
C6-C12	**208.67**	28.409	mg/kg dry	1	P5D0905	04/09/15	04/09/15	TX 1005	
>C12-C28	**1104.2**	28.409	mg/kg dry	1	P5D0905	04/09/15	04/09/15	TX 1005	
>C28-C35	**119.27**	28.409	mg/kg dry	1	P5D0905	04/09/15	04/09/15	TX 1005	
Surrogate: 1-Chlorooctane		*107 %*	*70-130*		*P5D0905*	*04/09/15*	*04/09/15*	*TX 1005*	
Surrogate: o-Terphenyl		*117 %*	*70-130*		*P5D0905*	*04/09/15*	*04/09/15*	*TX 1005*	
Total Hydrocarbon nC6-nC35	**1432.2**	28.409	mg/kg dry	1	[CALC]	04/09/15	04/09/15	[CALC]	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**350**	5.68	mg/kg dry	5	P5D1006	04/10/15	04/10/15	EPA 300.0	
% Moisture	**12.0**	0.1	%	1	P5D0901	04/09/15	04/09/15	% calculation	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladin Tank Battery
Project Number: 15-0130-01
Project Manager: Mark Larson

Fax: (432) 687-0456

TBC-B

5D08013-02 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	**0.00122**	0.00116	mg/kg dry	1	P5D1002	04/09/15	04/09/15	EPA 8021B	
Toluene	**0.0493**	0.00233	mg/kg dry	1	P5D1002	04/09/15	04/09/15	EPA 8021B	
Ethylbenzene	**0.0229**	0.00116	mg/kg dry	1	P5D1002	04/09/15	04/09/15	EPA 8021B	
Xylene (p/m)	**0.105**	0.00233	mg/kg dry	1	P5D1002	04/09/15	04/09/15	EPA 8021B	
Xylene (o)	**0.0351**	0.00116	mg/kg dry	1	P5D1002	04/09/15	04/09/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*96.8 %*	*75-125*		*P5D1002*	*04/09/15*	*04/09/15*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*67.4 %*	*75-125*		*P5D1002*	*04/09/15*	*04/09/15*	*EPA 8021B*	*S-GC*
C6-C12	**963.78**	145.35	mg/kg dry	5	P5D0905	04/09/15	04/09/15	TX 1005	
>C12-C28	**10922**	145.35	mg/kg dry	5	P5D0905	04/09/15	04/09/15	TX 1005	
>C28-C35	**1014.8**	145.35	mg/kg dry	5	P5D0905	04/09/15	04/09/15	TX 1005	
Surrogate: 1-Chlorooctane		*115 %*	*70-130*		*P5D0905*	*04/09/15*	*04/09/15*	*TX 1005*	
Surrogate: o-Terphenyl		*99.2 %*	*70-130*		*P5D0905*	*04/09/15*	*04/09/15*	*TX 1005*	
Total Hydrocarbon nC6-nC35	**12900**	145.35	mg/kg dry	5	[CALC]	04/09/15	04/09/15	[CALC]	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**971**	5.81	mg/kg dry	5	P5D1006	04/10/15	04/10/15	EPA 300.0	
% Moisture	**14.0**	0.1	%	1	P5D0901	04/09/15	04/09/15	% calculation	

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Project: Paladin Tank Battery
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Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5D0905 - TX 1005										
Blank (P5D0905-BLK1)				Prepared & Analyzed: 04/09/15						
C6-C12	ND	25.000	mg/kg wet							
>C12-C28	ND	25.000	"							
>C28-C35	ND	25.000	"							
Surrogate: 1-Chlorooctane	*115*		*"*	*100*		*115*	*70-130*			
Surrogate: o-Terphenyl	*66.0*		*"*	*50.0*		*132*	*70-130*			*S-GC*
LCS (P5D0905-BS1)				Prepared & Analyzed: 04/09/15						
C6-C12	956	25.000	mg/kg wet	1000		95.6	75-125			
>C12-C28	1060	25.000	"	1000		106	75-125			
Surrogate: 1-Chlorooctane	*129*		*"*	*100*		*129*	*70-130*			
Surrogate: o-Terphenyl	*57.8*		*"*	*50.0*		*116*	*70-130*			
LCS Dup (P5D0905-BSD1)				Prepared & Analyzed: 04/09/15						
C6-C12	918	25.000	mg/kg wet	1000		91.8	75-125	4.07	20	
>C12-C28	1020	25.000	"	1000		102	75-125	3.73	20	
Surrogate: 1-Chlorooctane	*125*		*"*	*100*		*125*	*70-130*			
Surrogate: o-Terphenyl	*55.5*		*"*	*50.0*		*111*	*70-130*			
Duplicate (P5D0905-DUP1)		**Source: 5D08017-03**		Prepared: 04/09/15 Analyzed: 04/10/15						
C6-C12	ND	25.253	mg/kg dry		ND				20	
>C12-C28	ND	25.253	"		ND				20	
>C28-C35	ND	25.253	"		ND				20	
Surrogate: 1-Chlorooctane	*116*		*"*	*101*		*115*	*70-130*			
Surrogate: o-Terphenyl	*67.8*		*"*	*50.5*		*134*	*70-130*			*S-GC*
Batch P5D1002 - General Preparation (GC)										
Blank (P5D1002-BLK1)				Prepared & Analyzed: 04/09/15						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	*0.0604*		*"*	*0.0600*		*101*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0560*		*"*	*0.0600*		*93.3*	*75-125*			

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5D1002 - General Preparation (GC)										
LCS (P5D1002-BS1)				Prepared & Analyzed: 04/09/15						
Benzene	0.0965	0.00100	mg/kg wet	0.100		96.5	70-130			
Toluene	0.102	0.00200	"	0.100		102	70-130			
Ethylbenzene	0.116	0.00100	"	0.100		116	70-130			
Xylene (p/m)	0.231	0.00200	"	0.200		116	70-130			
Xylene (o)	0.115	0.00100	"	0.100		115	70-130			
Surrogate: 4-Bromofluorobenzene	*0.0646*		*"*	*0.0600*		*108*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0557*		*"*	*0.0600*		*92.8*	*75-125*			
LCS Dup (P5D1002-BSD1)				Prepared & Analyzed: 04/09/15						
Benzene	0.105	0.00100	mg/kg wet	0.100		105	70-130	8.05	20	
Toluene	0.111	0.00200	"	0.100		111	70-130	8.75	20	
Ethylbenzene	0.109	0.00100	"	0.100		109	70-130	5.98	20	
Xylene (p/m)	0.239	0.00200	"	0.200		120	70-130	3.40	20	
Xylene (o)	0.115	0.00100	"	0.100		115	70-130	0.461	20	
Surrogate: 1,4-Difluorobenzene	*0.0589*		*"*	*0.0600*		*98.1*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0648*		*"*	*0.0600*		*108*	*75-125*			
Duplicate (P5D1002-DUP1)	**Source: 5D02001-03**			Prepared & Analyzed: 04/09/15						
Benzene	7.03	0.115	mg/kg dry		6.90			2.00	20	
Toluene	35.5	0.230	"		34.0			4.42	20	
Ethylbenzene	23.5	0.115	"		23.4			0.402	20	
Xylene (p/m)	43.5	0.230	"		44.1			1.38	20	
Xylene (o)	16.4	0.115	"		16.6			1.18	20	
Surrogate: 4-Bromofluorobenzene	*0.0695*		*"*	*0.0690*		*101*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.0751*		*"*	*0.0690*		*109*	*75-125*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladin Tank Battery
Project Number: 15-0130-01
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5D0901 - * DEFAULT PREP *** **										
Blank (P5D0901-BLK1)				Prepared & Analyzed: 04/09/15						
% Moisture	ND	0.1	%							
Duplicate (P5D0901-DUP1)		**Source: 5D07008-01**		Prepared & Analyzed: 04/09/15						
% Moisture	5.0	0.1	%		6.0			18.2	20	
Duplicate (P5D0901-DUP2)		**Source: 5D08012-04**		Prepared & Analyzed: 04/09/15						
% Moisture	8.0	0.1	%		8.0			0.00	20	
Duplicate (P5D0901-DUP3)		**Source: 5D08017-03**		Prepared & Analyzed: 04/09/15						
% Moisture	1.0	0.1	%		1.0			0.00	20	
Batch P5D1006 - * DEFAULT PREP *** **										
Blank (P5D1006-BLK1)				Prepared & Analyzed: 04/10/15						
Chloride	ND	1.00	mg/kg wet							
LCS (P5D1006-BS1)				Prepared & Analyzed: 04/10/15						
Chloride	102	1.00	mg/kg wet	100		102	80-120			
LCS Dup (P5D1006-BSD1)				Prepared & Analyzed: 04/10/15						
Chloride	98.2	1.00	mg/kg wet	100		98.2	80-120	3.54	20	
Duplicate (P5D1006-DUP1)		**Source: 5D08013-01**		Prepared & Analyzed: 04/10/15						
Chloride	396	5.68	mg/kg dry		350			12.3	20	
Matrix Spike (P5D1006-MS1)		**Source: 5D08013-01**		Prepared & Analyzed: 04/10/15						
Chloride	932	5.68	mg/kg dry	568	350	102	80-120			

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By:  Date: 4/10/2015

Brent Barron, Laboratory Director/Technical Director

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants

507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 4/8/2015 PAGE 1 OF 1

PO #: _____ LAB WORK ORDER #: 5D08013

PROJECT LOCATION OR NAME: Paladin Tank Battery

LAI PROJECT #: 15-0130-01 COLLECTOR: Sarah Shiver

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: NM

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

5D08013

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☒ MTBE ☐	TRPH 418.1 ☐ TPH 1005 ☒ TPH 1006 ☐	GASOLINE MOD 8015 ☐	DIESEL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐	FIELD NOTES
TBC-A	01	4/7/15	12:50	S	1				X		X	X															X	
TBC-B	02	↓	12:55	↓	↓				X			X															X	

TOTAL

RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
Sarah Shiver	4/8/2015 9:25	
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)

TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 5.0 NCF THERM #: LAI
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☐ HAND DELIVERED

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
10014 SCR 1213
Midland, TX 79706

PBELAB

Analytical Report

Prepared for:

Mark Larson

Larson & Associates, Inc.

P.O. Box 50685

Midland, TX 79710

Project: Paladiin/State BT "C" Battery

Project Number: 15-0130-01

Location:

Lab Order Number: 5D22006

NELAP ACCREDITED TNI LABORATORY

NELAP/TCEQ # T104704156-13-3

Report Date: 05/06/15

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladiin/State BT "C" Battery
Project Number: 15-0130-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-1 0'	5D22006-01	Soil	04/21/15 10:16	04-22-2015 10:21
SB-1 5'	5D22006-02	Soil	04/21/15 10:30	04-22-2015 10:21
SB-1 10'	5D22006-03	Soil	04/21/15 10:38	04-22-2015 10:21
SB-1 15'	5D22006-04	Soil	04/21/15 10:42	04-22-2015 10:21
SB-1 20'	5D22006-05	Soil	04/21/15 10:48	04-22-2015 10:21
SB-1 25'	5D22006-06	Soil	04/21/15 10:55	04-22-2015 10:21
SB-1 30'	5D22006-07	Soil	04/21/15 11:00	04-22-2015 10:21
SB-1 35'	5D22006-08	Soil	04/21/15 11:07	04-22-2015 10:21
SB-2 0'	5D22006-09	Soil	04/21/15 11:20	04-22-2015 10:21
SB-2 5'	5D22006-10	Soil	04/21/15 12:22	04-22-2015 10:21
SB-2 10'	5D22006-11	Soil	04/21/15 12:28	04-22-2015 10:21
SB-2 15'	5D22006-12	Soil	04/21/15 12:55	04-22-2015 10:21
SB-2 20'	5D22006-13	Soil	04/21/15 13:02	04-22-2015 10:21
SB-2 25'	5D22006-14	Soil	04/21/15 13:07	04-22-2015 10:21
SB-2 30'	5D22006-15	Soil	04/21/15 13:14	04-22-2015 10:21
SB-2 35'	5D22006-16	Soil	04/21/15 13:20	04-22-2015 10:21
SB-3 1'	5D22006-17	Soil	04/21/15 13:32	04-22-2015 10:21
SB-3 5'	5D22006-18	Soil	04/21/15 13:40	04-22-2015 10:21
SB-3 10'	5D22006-19	Soil	04/21/15 13:47	04-22-2015 10:21
SB-3 15'	5D22006-20	Soil	04/21/15 13:54	04-22-2015 10:21
SB-3 20'	5D22006-21	Soil	04/21/15 13:58	04-22-2015 10:21
SB-3 25'	5D22006-22	Soil	04/21/15 14:09	04-22-2015 10:21
SB-3 30'	5D22006-23	Soil	04/21/15 14:15	04-22-2015 10:21
SB-3 35'	5D22006-24	Soil	04/21/15 14:20	04-22-2015 10:21

Larson & Associates, Inc.	Project: Paladiin/State BT "C" Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 0'

5D22006-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**420**	1.08	mg/kg dry	1	P5D3006	04/29/15	04/30/15	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**296**	134	mg/kg dry	5	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C12-C28	**9080**	134	mg/kg dry	5	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C28-C35	**833**	134	mg/kg dry	5	P5D2702	04/24/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*74.8 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*82.3 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**10200**	134	mg/kg dry	5	[CALC]	04/24/15	04/27/15	calc	

Larson & Associates, Inc.	Project: Paladiin/State BT "C" Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 5'

5D22006-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00111	mg/kg dry	1	P5D2704	04/24/15	04/24/15	EPA 8021B	
Toluene	**0.0579**	0.00222	mg/kg dry	1	P5D2704	04/24/15	04/24/15	EPA 8021B	
Ethylbenzene	**0.0665**	0.00111	mg/kg dry	1	P5D2704	04/24/15	04/24/15	EPA 8021B	
Xylene (p/m)	**0.324**	0.00222	mg/kg dry	1	P5D2704	04/24/15	04/24/15	EPA 8021B	
Xylene (o)	**0.105**	0.00111	mg/kg dry	1	P5D2704	04/24/15	04/24/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*83.2 %*	*75-125*		*P5D2704*	*04/24/15*	*04/24/15*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*113 %*	*75-125*		*P5D2704*	*04/24/15*	*04/24/15*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**397**	1.11	mg/kg dry	1	P5D3006	04/29/15	04/30/15	EPA 300.0	
% Moisture	**10.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**493**	27.8	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C12-C28	**2780**	27.8	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C28-C35	**305**	27.8	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*105 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*88.9 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**3580**	27.8	mg/kg dry	1	[CALC]	04/24/15	04/27/15	calc	

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P.O. Box 50685	Project Number: 15-0130-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 10'

5D22006-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**280**	1.10	mg/kg dry	1	P5D3006	04/29/15	04/30/15	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.5	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C12-C28	**35.1**	27.5	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*75.1 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*89.0 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**35.1**	27.5	mg/kg dry	1	[CALC]	04/24/15	04/27/15	calc	

Larson & Associates, Inc.	Project: Paladiin/State BT "C" Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 15'

5D22006-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**122**	1.05	mg/kg dry	1	P5D3006	04/29/15	04/30/15	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*74.5 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*87.8 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	04/24/15	04/27/15	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-1 20'

5D22006-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**74.9**	1.06	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*67.6 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	*S-GC*
Surrogate: o-Terphenyl		*78.3 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	04/24/15	04/27/15	calc	

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P.O. Box 50685	Project Number: 15-0130-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 25'

5D22006-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**67.4**	1.08	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C12-C28	**35.0**	26.9	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*77.2 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*92.0 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**35.0**	26.9	mg/kg dry	1	[CALC]	04/24/15	04/27/15	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-1 30'

5D22006-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**43.5**	1.41	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**29.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-1 35'

5D22006-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**103**	1.08	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	

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SB-2 0'

5D22006-09 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**125**	1.35	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**26.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**72.5**	33.8	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C12-C28	**1870**	33.8	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C28-C35	**106**	33.8	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*83.5 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*100 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**2050**	33.8	mg/kg dry	1	[CALC]	04/24/15	04/27/15	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-2 5'

5D22006-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00114	mg/kg dry	1	P5D2704	04/24/15	04/24/15	EPA 8021B	
Toluene	**0.0134**	0.00227	mg/kg dry	1	P5D2704	04/24/15	04/24/15	EPA 8021B	
Ethylbenzene	**0.00333**	0.00114	mg/kg dry	1	P5D2704	04/24/15	04/24/15	EPA 8021B	
Xylene (p/m)	**0.0245**	0.00227	mg/kg dry	1	P5D2704	04/24/15	04/24/15	EPA 8021B	
Xylene (o)	**0.00432**	0.00114	mg/kg dry	1	P5D2704	04/24/15	04/24/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*103 %*	*75-125*		*P5D2704*	*04/24/15*	*04/24/15*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*92.7 %*	*75-125*		*P5D2704*	*04/24/15*	*04/24/15*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**480**	1.14	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**12.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	28.4	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C12-C28	**98.6**	28.4	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*82.2 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*96.8 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**98.6**	28.4	mg/kg dry	1	[CALC]	04/24/15	04/27/15	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-2 10'

5D22006-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**83.3**	1.02	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**43.5**	25.5	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C12-C28	**399**	25.5	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*78.1 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*92.3 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**443**	25.5	mg/kg dry	1	[CALC]	04/24/15	04/27/15	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-2 15'

5D22006-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**6.55**	1.19	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**16.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	29.8	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C12-C28	ND	29.8	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
>C28-C35	ND	29.8	mg/kg dry	1	P5D2702	04/24/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*72.4 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*85.9 %*	*70-130*		*P5D2702*	*04/24/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	29.8	mg/kg dry	1	[CALC]	04/24/15	04/27/15	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-2 20'

5D22006-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**72.2**	1.09	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*70.6 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*83.3 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	04/27/15	04/27/15	calc	

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SB-2 25'

5D22006-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**4.54**	1.09	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-2 30'

5D22006-15 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**440**	1.18	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**15.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-2 35'

5D22006-16 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**47.7**	1.08	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-3 1'

5D22006-17 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**363**	1.28	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**22.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	32.1	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C12-C28	**685**	32.1	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C28-C35	**70.5**	32.1	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*63.9 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	*S-GC*
Surrogate: o-Terphenyl		*86.6 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**756**	32.1	mg/kg dry	1	[CALC]	04/27/15	04/27/15	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-3 5'

5D22006-18 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00130	mg/kg dry	1	P5D2704	04/24/15	04/24/15	EPA 8021B	
Toluene	**0.0240**	0.00260	mg/kg dry	1	P5D2704	04/24/15	04/24/15	EPA 8021B	
Ethylbenzene	**0.0483**	0.00130	mg/kg dry	1	P5D2704	04/24/15	04/24/15	EPA 8021B	
Xylene (p/m)	**0.276**	0.00260	mg/kg dry	1	P5D2704	04/24/15	04/24/15	EPA 8021B	
Xylene (o)	**0.0419**	0.00130	mg/kg dry	1	P5D2704	04/24/15	04/24/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*80.8 %*	*75-125*		*P5D2704*	*04/24/15*	*04/24/15*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*101 %*	*75-125*		*P5D2704*	*04/24/15*	*04/24/15*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**8.78**	1.30	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**23.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**137**	32.5	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C12-C28	**683**	32.5	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C28-C35	**39.4**	32.5	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*79.0 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*88.8 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**860**	32.5	mg/kg dry	1	[CALC]	04/27/15	04/27/15	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SB-3 10'

5D22006-19 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**52.4**	1.10	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.5	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C12-C28	**177**	27.5	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*68.1 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	*S-GC*
Surrogate: o-Terphenyl		*80.5 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**177**	27.5	mg/kg dry	1	[CALC]	04/27/15	04/27/15	calc	

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SB-3 15'

5D22006-20 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**44.5**	1.04	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**28.7**	26.0	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C12-C28	**270**	26.0	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*74.4 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*87.5 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**298**	26.0	mg/kg dry	1	[CALC]	04/27/15	04/27/15	calc	

Larson & Associates, Inc.	Project: Paladiin/State BT "C" Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-3 20'

5D22006-21 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.22	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**18.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	30.5	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C12-C28	ND	30.5	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
>C28-C35	ND	30.5	mg/kg dry	1	P5D3003	04/27/15	04/27/15	TPH 8015M	
Surrogate: 1-Chlorooctane		*70.2 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	
Surrogate: o-Terphenyl		*82.7 %*	*70-130*		*P5D3003*	*04/27/15*	*04/27/15*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	30.5	mg/kg dry	1	[CALC]	04/27/15	04/27/15	calc	

Larson & Associates, Inc.	Project: Paladiin/State BT "C" Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-3 25'

5D22006-22 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**65.4**	1.08	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	

Larson & Associates, Inc.	Project: Paladiin/State BT "C" Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-3 30'

5D22006-23 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**82.3**	1.08	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	

Larson & Associates, Inc.	Project: Paladiin/State BT "C" Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-3 35'

5D22006-24 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**96.1**	1.10	mg/kg dry	1	P5E0503	04/30/15	05/05/15	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P5D2705	04/27/15	04/27/15	% calculation	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladiin/State BT "C" Battery
Project Number: 15-0130-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5D2704 - General Preparation (GC)										
Blank (P5D2704-BLK1)				Prepared & Analyzed: 04/24/15						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	*0.0503*		*"*	*0.0600*		*83.8*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0663*		*"*	*0.0600*		*110*	*75-125*			
LCS (P5D2704-BS1)				Prepared & Analyzed: 04/24/15						
Benzene	0.100	0.00100	mg/kg wet	0.100		100	70-130			
Toluene	0.111	0.00200	"	0.100		111	70-130			
Ethylbenzene	0.117	0.00100	"	0.100		117	70-130			
Xylene (p/m)	0.231	0.00200	"	0.200		115	70-130			
Xylene (o)	0.110	0.00100	"	0.100		110	70-130			
Surrogate: 1,4-Difluorobenzene	*0.0595*		*"*	*0.0600*		*99.2*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0680*		*"*	*0.0600*		*113*	*75-125*			
LCS Dup (P5D2704-BSD1)				Prepared & Analyzed: 04/24/15						
Benzene	0.0986	0.00100	mg/kg wet	0.100		98.6	70-130	1.60	20	
Toluene	0.111	0.00200	"	0.100		111	70-130	0.0720	20	
Ethylbenzene	0.115	0.00100	"	0.100		115	70-130	1.63	20	
Xylene (p/m)	0.224	0.00200	"	0.200		112	70-130	2.83	20	
Xylene (o)	0.109	0.00100	"	0.100		109	70-130	1.57	20	
Surrogate: 1,4-Difluorobenzene	*0.0613*		*"*	*0.0600*		*102*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.0673*		*"*	*0.0600*		*112*	*75-125*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladiin/State BT "C" Battery
Project Number: 15-0130-01
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5D2705 - * DEFAULT PREP *** **										
Blank (P5D2705-BLK1)				Prepared & Analyzed: 04/27/15						
% Moisture	ND	0.1	%							
Duplicate (P5D2705-DUP1)		**Source: 5D24002-01**		Prepared & Analyzed: 04/27/15						
% Moisture	10.0	0.1	%		11.0			9.52	20	
Duplicate (P5D2705-DUP2)		**Source: 5D24003-01**		Prepared & Analyzed: 04/27/15						
% Moisture	2.0	0.1	%		2.0			0.00	20	
Batch P5D3006 - * DEFAULT PREP *** **										
Blank (P5D3006-BLK1)				Prepared: 04/29/15 Analyzed: 04/30/15						
Chloride	ND	1.00	mg/kg wet							
LCS (P5D3006-BS1)				Prepared: 04/29/15 Analyzed: 04/30/15						
Chloride	105	1.00	mg/kg wet	100		105	80-120			
LCS Dup (P5D3006-BSD1)				Prepared: 04/29/15 Analyzed: 04/30/15						
Chloride	105	1.00	mg/kg wet	100		105	80-120	0.334	20	
Duplicate (P5D3006-DUP1)		**Source: 5D22004-39**		Prepared: 04/29/15 Analyzed: 04/30/15						
Chloride	3310	27.5	mg/kg dry		3140			5.33	20	
Duplicate (P5D3006-DUP2)		**Source: 5D24001-01**		Prepared: 04/29/15 Analyzed: 04/30/15						
Chloride	3470	61.0	mg/kg dry		3490			0.544	20	
Matrix Spike (P5D3006-MS1)		**Source: 5D22004-39**		Prepared: 04/29/15 Analyzed: 04/30/15						
Chloride	6020	27.5	mg/kg dry	2750	3140	105	80-120			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladiin/State BT "C" Battery
Project Number: 15-0130-01
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5E0503 - * DEFAULT PREP *** **										
Blank (P5E0503-BLK1)				Prepared: 04/30/15 Analyzed: 05/05/15						
Chloride	ND	1.00	mg/kg wet							
LCS (P5E0503-BS1)				Prepared: 04/30/15 Analyzed: 05/05/15						
Chloride	107	1.00	mg/kg wet	100		107	80-120			
LCS Dup (P5E0503-BSD1)				Prepared: 04/30/15 Analyzed: 05/05/15						
Chloride	108	1.00	mg/kg wet	100		108	80-120	0.539	20	
Duplicate (P5E0503-DUP1)		**Source: 5D22006-05**		Prepared: 04/30/15 Analyzed: 05/05/15						
Chloride	77.2	1.06	mg/kg dry		74.9			3.02	20	
Duplicate (P5E0503-DUP2)		**Source: 5D22006-15**		Prepared: 04/30/15 Analyzed: 05/05/15						
Chloride	444	1.18	mg/kg dry		440			0.862	20	

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Project: Paladiin/State BT "C" Battery
Project Number: 15-0130-01
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Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5D2702 - TX 1005										
Duplicate (P5D2702-DUP1)	**Source: 5D22006-12**			Prepared: 04/24/15 Analyzed: 04/27/15						
C6-C12	ND	29.8	mg/kg dry		ND				20	
>C12-C28	29.9	29.8	"		ND				20	
Surrogate: 1-Chlorooctane	*92.0*		*"*	*119*		*77.3*	*70-130*			
Surrogate: o-Terphenyl	*53.9*		*"*	*59.5*		*90.5*	*70-130*			
Batch P5D3003 - TX 1005										
Blank (P5D3003-BLK1)				Prepared & Analyzed: 04/27/15						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*65.6*		*"*	*100*		*65.6*	*70-130*			*S-GC*
Surrogate: o-Terphenyl	*38.6*		*"*	*50.0*		*77.2*	*70-130*			
LCS (P5D3003-BS1)				Prepared & Analyzed: 04/27/15						
C6-C12	894	25.0	mg/kg wet	1000		89.4	75-125			
>C12-C28	1080	25.0	"	1000		108	75-125			
Surrogate: 1-Chlorooctane	*88.6*		*"*	*100*		*88.6*	*70-130*			
Surrogate: o-Terphenyl	*43.8*		*"*	*50.0*		*87.6*	*70-130*			
LCS Dup (P5D3003-BSD1)				Prepared & Analyzed: 04/27/15						
C6-C12	986	25.0	mg/kg wet	1000		98.6	75-125	9.85	20	
>C12-C28	1150	25.0	"	1000		115	75-125	6.17	20	
Surrogate: 1-Chlorooctane	*87.7*		*"*	*100*		*87.7*	*70-130*			
Surrogate: o-Terphenyl	*40.7*		*"*	*50.0*		*81.5*	*70-130*			
Duplicate (P5D3003-DUP1)	**Source: 5D27003-01**			Prepared: 04/27/15 Analyzed: 04/28/15						
C6-C12	2740	439	mg/kg dry		2900			5.86	20	
>C12-C28	22400	439	"		23700			5.82	20	
Surrogate: 1-Chlorooctane	*147*		*"*	*175*		*83.7*	*70-130*			
Surrogate: o-Terphenyl	*91.1*		*"*	*87.7*		*104*	*70-130*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladiin/State BT "C" Battery
Project Number: 15-0130-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By:  Date: 5/6/2015

Brent Barron, Laboratory Director/Technical Director

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants

507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 4-21-2015 PAGE 1 OF 2

PO #: _____ LAB WORK ORDER #: 5D22006

PROJECT LOCATION OR NAME: Paladin State BT "C" Battery

LAI PROJECT #: 15-0130-01 COLLECTOR: MJL

TRRP report? ☐ Yes ☑ No

TIME ZONE: Time zone/State: Mtn / NM

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☑ MTBE ☐ | TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☐ | DIESEL - MOD 8015 ☑ | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDE ☑ ANIONS ☐ ALKALINITY ☐

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	BTEX ☑	TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☐	DIESEL - MOD 8015 ☑	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☑ ANIONS ☐ ALKALINITY ☐	FIELD NOTES
SB-1, 0'	-01	4/21/15	10:16	S	1				✓			✓		✓												✓		
SB-1, 5'	-02		10:30	S	1				✓		✓	✓		✓												✓		
SB-1, 10'	-03		10:38	S	1				✓			✓		✓												✓		
SB-1, 15'	-04		10:42	S	1				✓			✓		✓												✓		
SB-1, 20'	-05		10:48	S	1				✓			✓		✓												✓		
SB-1, 25'	-06		10:55	S	1				✓			✓		✓												✓		
SB-1, 30'	-07		11:00	S	1			✓	✓																	✓		
SB-1, 35'	-08		11:07	S	1				✓																	✓		
SB-2, 0'	-09		11:20	S	1				✓			✓		✓												✓		
SB-2, 5'	-10		12:22	S	1				✓		✓	✓		✓												✓		
SB-2, 10'	-11		12:28	S	1				✓			✓		✓												✓		
SB-2, 15'	-12		12:55	S	1				✓			✓		✓												✓		
SB-2, 20'	-13		13:02	S	1				✓			✓		✓												✓		
SB-2, 25'	-14		13:07	S	1			✓																		✓		
SB-2, 30'	-15		13:14	S	1			✓	✓																	✓		
TOTAL																												

RELINQUISHED BY:(Signature) DATE/TIME 4/22/15 10:21 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

Permian Basin Env. Lab

TURN AROUND TIME
NORMAL ☑
1 DAY ☐
2 DAY ☐
OTHER ☐
_____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.4 THERM #: _____
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☑ HAND DELIVERED

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 4-21-2015 PAGE 2 OF 2

PO #: _____ LAB WORK ORDER #: 580220

PROJECT LOCATION OR NAME: Paladin / State BT "C" Battery

LAI PROJECT #: 15-0130-01 COLLECTOR: MJL

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: Mtn/NM

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☒ MTBE ☐	TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☒	DIESEL - MOD 8015 ☒	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐	FIELD NOTES
SB-2, 35'	-16	4/21/15	13:26	S	1				✓				✓	✓												✓		
SB-3, 1'	-17		13:32	S	1				✓				✓	✓												✓		
SB-3, 5'	-18		13:40	S	1				✓	✓			✓	✓												✓		
SB-3, 10'	-19		13:47	S	1				✓				✓	✓												✓		
SB-3, 15'	-20		13:54	S	1				✓				✓	✓												✓		
SB-3, 20'	-21		13:58	S	1				✓				✓	✓												✓		
SB-3, 25'	-22		14:09	S	1				✓																	✓		
SB-3, 30'	-23		14:15	S	1				✓																	✓		
SB-3, 35'	-24	↓	14:20	S	1				✓																	✓		
TOTAL																												

RELINQUISHED BY:(Signature) DATE/TIME 4/22/15 10:21 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

Permian Basin Env. Lab

TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 1.0 THERM #: _____
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☒ HAND DELIVERED

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
10014 SCR 1213
Midland, TX 79706

PBELAB

Analytical Report

Prepared for:

Mark Larson

Larson & Associates, Inc.

P.O. Box 50685

Midland, TX 79710

Project: Paladin/State BT "D" Well #003 Battery

Project Number: 15-0130-02

Location: New Mexico

Lab Order Number: 5D22008

NELAP ACCREDITED TNI LABORATORY

NELAP/TCEQ # T104704156-13-3

Report Date: 05/08/15

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladin/State BT "D" Well #003 Battery
Project Number: 15-0130-02
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TMW-1	5D22008-01	Water	04/21/15 08:25	04-22-2015 10:21

Larson & Associates, Inc.	Project: Paladin/State BT "D" Well #003 Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-02	
Midland TX, 79710	Project Manager: Mark Larson	

TMW-1

5D22008-01 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
Organics by GC									
Benzene	ND	0.00100	mg/L	1	P5E0511	05/01/15	05/04/15	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P5E0511	05/01/15	05/04/15	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P5E0511	05/01/15	05/04/15	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P5E0511	05/01/15	05/04/15	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P5E0511	05/01/15	05/04/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*83.8 %*		*80-120*	*P5E0511*	*05/01/15*	*05/04/15*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*96.5 %*		*80-120*	*P5E0511*	*05/01/15*	*05/04/15*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**40.4**	5.00	mg/L	10	P5E0808	05/07/15	05/08/15	EPA 300.0	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladin/State BT "D" Well #003 Battery
Project Number: 15-0130-02
Project Manager: Mark Larson

Fax: (432) 687-0456

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5E0511 - General Preparation (GC)										
Blank (P5E0511-BLK1)				Prepared: 05/01/15 Analyzed: 05/04/15						
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	*52.4*		*ug/l*	*60.0*		*87.3*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*63.6*		*"*	*60.0*		*106*	*80-120*			
LCS (P5E0511-BS1)				Prepared: 05/01/15 Analyzed: 05/04/15						
Benzene	0.0924	0.00100	mg/L	0.100		92.4	80-120			
Toluene	0.101	0.00100	"	0.100		101	80-120			
Ethylbenzene	0.114	0.00100	"	0.100		114	80-120			
Xylene (p/m)	0.227	0.00200	"	0.200		114	80-120			
Xylene (o)	0.112	0.00100	"	0.100		112	80-120			
Surrogate: 4-Bromofluorobenzene	*62.6*		*ug/l*	*60.0*		*104*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*55.9*		*"*	*60.0*		*93.1*	*80-120*			
Duplicate (P5E0511-DUP1)	**Source: 5D22010-01**			Prepared: 05/01/15 Analyzed: 05/04/15						
Benzene	0.00187	0.00100	mg/L		0.00227			19.3	20	
Toluene	ND	0.00100	"		ND				20	
Ethylbenzene	ND	0.00100	"		ND				20	
Xylene (p/m)	ND	0.00200	"		ND				20	
Xylene (o)	ND	0.00100	"		ND				20	
Surrogate: 4-Bromofluorobenzene	*60.3*		*ug/l*	*60.0*		*101*	*80-120*			
Surrogate: 1,4-Difluorobenzene	*49.4*		*"*	*60.0*		*82.4*	*80-120*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Paladin/State BT "D" Well #003 Battery
Project Number: 15-0130-02
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

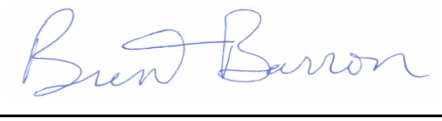
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5E0808 - * DEFAULT PREP *** **										
Blank (P5E0808-BLK1)				Prepared: 05/07/15 Analyzed: 05/08/15						
Chloride	ND	0.500	mg/L							
LCS (P5E0808-BS1)				Prepared: 05/07/15 Analyzed: 05/08/15						
Chloride	10.3	0.500	mg/L	10.0		103	80-120			
LCS Dup (P5E0808-BSD1)				Prepared: 05/07/15 Analyzed: 05/08/15						
Chloride	10.3	0.500	mg/L	10.0		103	80-120	0.475	20	
Duplicate (P5E0808-DUP1)		**Source: 5D22008-01**		Prepared: 05/07/15 Analyzed: 05/08/15						
Chloride	38.4	5.00	mg/L		40.4			5.20	20	
Matrix Spike (P5E0808-MS1)		**Source: 5D22008-01**		Prepared: 05/07/15 Analyzed: 05/08/15						
Chloride	147	5.00	mg/L	100	40.4	107	80-120			

Larson & Associates, Inc.	Project: Paladin/State BT "D" Well #003 Battery	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 15-0130-02	
Midland TX, 79710	Project Manager: Mark Larson	

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By:  Date: 5/8/2015

Brent Barron, Laboratory Director/Technical Director

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 4-21-2015 PAGE 1 OF 1

PO #: LAB WORK ORDER #: 5D22008

PROJECT LOCATION OR NAME: Paladin/State BT "D" Well #003

LAI PROJECT #: 15-0130-02 COLLECTOR: TUL

TRRP report? ☐ Yes ☑ No

TIME ZONE: Time zone/State: Mtn/NM

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

5PD22008

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
TMW-1	-01	4/21/15	08:25	W	3				✓		BTEX ☑ MTBE ☐; TRPH 418.1 ☐; TPH 1005 ☐; TPH 1006 ☐; GASOLINE MOD 8015 ☐; DIESEL - MOD 8015 ☐; VOC 8260 ☐; SVOC 8270 ☐; PAH 8270 ☐; HOLDPAH ☐; 8081 PESTICIDES ☐; 8151 HERBICIDES ☐; 8082 PCBS ☐; TCLP - METALS (RCRA) ☐; TCLP VOC ☐; TCLP - PEST ☐; HERB ☐; Semi-VOC ☐; TOTAL METALS (RCRA) ☐; OTHER LIST ☐; LEAD - TOTAL ☐; D.W. 200.8 ☐; TCLP ☐; RCI ☐; TOX ☐; FLASHPOINT ☐; TDS ☑; TSS ☐; % MOISTURE ☐; CYANIDE ☐; pH ☐; HEXAVALENT CHROMIUM ☐; EXPLOSIVES ☐; PECHLORATE ☐; CHLORIDE ☑; ANIONS ☑; ALKALINITY ☑; Sulfate; Chloride	

TOTAL

RELINQUISHED BY:(Signature) DATE/TIME 4/22/15 10:21 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

Permian Basin Env. Lab

TURN AROUND TIME

NORMAL ☑
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:

RECEIVING TEMP: 2.2 THERM #: NCF LA1

CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED

☐ CARRIER BILL #

☐ HAND DELIVERED

APPENDIX C

Boring Logs

BORING RECORD

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC Start : 10:16 Stop : 11:07	DESCRIPTION USCS	GRAPHIC LOG	PID READING PPM X 15	SAMPLE NUMBER	SAMPLE PID READING	SAMPLE RECOVERY	SAMPLE DEPTH	REMARKS BACKGROUND PID READING SOIL : _____ PPM
	1	Caliche, Sand, Fill Material	GW							10:16
		Silty Clay, 7.5YR7/8, Black, Hydrocarbon stain odor soft, Moist	CL							27.4 PPM
	3									
	5								5	26.4 PPM 10:30
	10	Caliche, 7.5YR7/11, Pink, Sandy, Very fine grained quartz sand, Indurated hard	Caliche						10	15 PPM 10:38
	15								15	11.5 PPM 10:42
	20								20	4.4 PPM 10:48
		Sand, 5YR4/6, Yellowish red, Very fine grained quartz sand, Poorly sorted, Round, Loose to poorly cemented	Sand							
	25								25	32.7 PPM 10:55

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

Larson & Associates, Inc.
Environmental Consultants

DRILL DATE : 4 - 21 - 2015

BORING NUMBER : SB - 1

JOB NUMBER : Paladin State BT "C"/15-0130-01
HOLE DIAMETER : 5"
LOCATION : NW of Tanks
LAI GEOLOGIST : MJL
DRILLING CONTRACTOR : SDI
DRILLING METHOD : DR

BORING RECORD

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	PID READING (PPM X 15)	SAMPLE NUMBER	SAMPLE PID READING	SAMPLE RECOVERY	SAMPLE DEPTH	REMARKS BACKGROUND PID READING
	26	Start : 10:16								
	30								30	4.4 PPM 11:00
		Sandstone, 5YR5/6, Yellowish red, Very fine grained, Sand, Poorly sorted, Round, Moderately, Well cemented								
	35	Stop : 11:07							35	2.6 PPM 11:07
		TP: 35'								
	40									
	45									
	50									

PID READING scale: 2 4 6 8 10 12 14 16 18

REMARKS: SOIL : _____ PPM

ONE CONTINUOUS AUGER SAMPLER		WATER TABLE (TIME OF BORING)	
STANDARD PENETRATION TEST	L	LABORATORY TEST LOCATION	
UNDISTURBED SAMPLE	+	PENETROMETER (TONS/ SQ. FT)	
WATER TABLE (24 HRS)	NR	NO RECOVERY	

JOB NUMBER : Paladin State BT "C"/15-0130-01
HOLE DIAMETER : 5"
LOCATION : NW of Tanks
LAI GEOLOGIST : MJL
DRILLING CONTRACTOR : SDI
DRILLING METHOD : DR (2 of 2 Pages)

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 4 - 21 - 2015

BORING NUMBER : SB - 1

BORING RECORD

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC Start : 11:20 Stop : 13:20	DESCRIPTION USCS	GRAPHIC LOG
	1	Gravel/sand, Fill, Hydrocarbon odor	GW	
	5	Silty Clay, 7.5YR7/8, Black, Hydrocarbon stain, Slightly odor	CL	
	8			
	10	Caliche, 7.1YR7/1, Pink, Sandy, Very fine grained quartz sand, Indurated, Very hard, Slow drilling	Caliche	
	15			
	17			
	20	Sand, 5YR5/6, Yellowish red, Very fine grained quartz sand, Poorly sorted, Round, Moist, Loose to slightly consolidated	SP	
	25			

PID READING

PPM X 8

2 4 6 8 10 12 14 16 18

SAMPLE

NUMBER	PID READING	RECOVERY	DEPTH
			5
			10
			15
			20
			25

REMARKS

BACKGROUND PID READING

SOIL : _____ PPM

11:20	22.1 PPM
12:22	15.3 PPM
12:28	112 PPM
12:55	57 PPM
13:02	15 PPM
13:07	53.9 PPM

ONE CONTINUOUS AUGER SAMPLER

STANDARD PENETRATION TEST

UNDISTURBED SAMPLE

WATER TABLE (24 HRS)

WATER TABLE (TIME OF BORING)

L LABORATORY TEST LOCATION

\+ PENETROMETER (TONS/ SQ. FT)

NR NO RECOVERY

Larson & Associates, Inc.
Environmental Consultants

DRILL DATE : 4 - 21 - 2015

BORING NUMBER : SB - 2

JOB NUMBER : Paladin State BT "C"/15-0130-01

HOLE DIAMETER : 5"

LOCATION : SW of Tanks

LAI GEOLOGIST : MJL

DRILLING CONTRACTOR : SDI

DRILLING METHOD : DR

BORING RECORD

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	PID READING	SAMPLE NUMBER	SAMPLE PID READING	SAMPLE RECOVERY	SAMPLE DEPTH	REMARKS
		Start : 11:20 Stop : 13:20			PPM X 8 2 4 6 8 10 12 14 16 18					BACKGROUND PID READING SOIL : _____ PPM
	26									
	29									
	30								30	2.0 PPM
		Sandstone, 5YR5/6, Yellowish red, Very fine grained, Sand, Poorly sorted, Round, Moderately, Well cemented	Sand stone							13:14
	35	TP: 35'							35	18.0 PPM
										13:20
	40									
	45									
	50									

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : Paladin State BT "C"/15-0130-01
HOLE DIAMETER : 5"
LOCATION : SW of Tanks
LAI GEOLOGIST : MJL
DRILLING CONTRACTOR : SDI
DRILLING METHOD : DR (2 of 2 Pages)

Larson & Associates, Inc.
Environmental Consultants

DRILL DATE : 4 - 21 - 2015

BORING NUMBER : SB - 2

BORING RECORD

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC Start : 13:32 Stop : 14:20	DESCRIPTION USCS	GRAPHIC LOG	PID READING PPM X 15	SAMPLE NUMBER	SAMPLE PID READING	SAMPLE RECOVERY	SAMPLE DEPTH	REMARKS BACKGROUND PID READING SOIL : _____ PPM
	1	Excavated soil							1	16 PPM 13:32
		Caliche, 7.5YR7/4, Grained, Sandy, Very fine grained, Quartz sand, Indurated very hard, Hydrocarbon odor								
	5								5	223 PPM 13:40
		7.5YR7/3, Light gray, Below 10'								
	10								10	130 PPM 13:47
			Caliche							
		7.6YR7/1, Pink, Below 15'								
	15								15	29 PPM 13:54
	20								20	13 PPM 13:58
	22									
		Sand, 5YR5/6, Yellowish red, Very fine grained quartz sand, Poorly sorted, Clay	SP							
	25								25	7.9 PPM 14:08

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

Larson & Associates, Inc.
Environmental Consultants

DRILL DATE : 4 - 21 - 2015

BORING NUMBER : SB - 3

JOB NUMBER : Paladin State BT "C"/15-0130-01
HOLE DIAMETER : 5"
LOCATION : SE of Tanks
LAI GEOLOGIST : MJL
DRILLING CONTRACTOR : SDI
DRILLING METHOD : DR

BORING RECORD

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	PID READING	SAMPLE NUMBER	SAMPLE PID READING	SAMPLE RECOVERY	SAMPLE DEPTH	REMARKS
	26	Start : 13:32 Stop : 14:20			PPM X 15 2 4 6 8 10 12 14 16 18					BACKGROUND PID READING SOIL : _____ PPM
	30	Sandstone, 5YR5/6, Yellowish red, Very fine grained, Quartz sand, Poorly sorted, Poorly cemented							30	2.0 PPM 14:15
	35	TP: 35'							35	2.0 PPM 14:20
	40									
	45									
	50									

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

Larson & Associates, Inc.
Environmental Consultants

DRILL DATE : 4 - 21 - 2015

BORING NUMBER : SB - 3

JOB NUMBER : Paladin State BT "C"/15-0130-01
HOLE DIAMETER : 5"
LOCATION : SE of Tanks
LAI GEOLOGIST : MJL
DRILLING CONTRACTOR : SDI
DRILLING METHOD : DR

APPENDIX D

Photographs

Facility Sign

Excavation near Southeast Corner (SB-3) Viewing North, April 7, 2015

Excavation near Southeast Corner (SB-3) Viewing West April 7, 2015

South Side of Facility Viewing West from Southeast Corner, April 7, 2015

South Side of Facility Viewing East, April 7, 2015

Spill in Vicinity of Boring SB-1 Viewing North, April 7, 2015

Excavation near Southeast Corner of Facility (SB-3) Viewing North, April 21, 2015

Spill near Boring SB-2 (foreground) Viewing North, April 21, 2015

North Side of Facility Viewing West, April 21, 2015

Spill near Boring SB-1 (foreground) Viewing Southeast, April 21, 2015

APPENDIX E

Initial C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Paladin Energy Corp	Contact: Mickey Horn
Address: 10290 Monroe Dr., Ste 301, Fort Worth, TX 75229	Telephone No. (214) 352-7273
Facility Name: State BT "C" No. 003	Facility Type: Tank Battery

Surface Owner: State of New Mexico	Mineral Owner: State of New Mexico	API No. 30-025-01017-00-00

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
L	35	11S	33E	1,980	South	660	West	Lea

Latitude 33° 19' 04" **Longitude** 103° 34' 12"

NATURE OF RELEASE

Type of Release Crude oil/produced water	Volume of Release 15 bbl oil and 40 bbl water	Volume Recovered 7 bbl (total fluid)
Source of Release Valve failure at free water knockout	Date and Hour of Occurrence 03/15/2015	Date and Hour of Discovery 03/16/2015
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

RECEIVED
By OCD; Dr. Oberding at 1:05 pm, Apr 07, 2015

Describe Cause of Problem and Remedial Action Taken.* Pop-off relief valve failed at free water knockout causing liquids to spill onto ground. Spill is limited to area inside firewall and no liquid escaped firewall. A vacuum truck was used to pick up free liquid. Backhoe and roust-a-bout crew to pick up oily soil for disposal at OCD approved facility.

Describe Area Affected and Cleanup Action Taken.* Area affected by spill is inside firewall and did not affect area outside of firewall. ~~Composite soil samples~~ will be collected and analyzed following removal of oily soil and reported to OCD to determine if further remediation is required.
Note: Composite samples are not accepted.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Mickey Horn

Printed Name: Mickey Horn

Title: Operations Manager

E-mail Address: paladinmid@suddenlink.net

Date: April 6, 2015 Phone: (432) 522-2162

OIL CONSERVATION DIVISION

Approved by ~~Environmental Specialist~~ Hydrologist

Approval Date: 04/07/2015 Expiration Date: 07/07/2015

Conditions of Approval:

Site samples required. Delineate and remediate area as per NMOCD guides.

Attached ☐

1RP-3593 164070

nTO1509747584

pTO1509747792

* Attach Additional Sheets If Necessary